UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2003/00762

January 16, 2004

Mr. Lawrence Evans
U.S. Army Corps of Engineers, Portland District
ATTN: Ms. Mary Headley
P.O. Box 2946
Portland, OR 97208-2946

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fisheries and Conservation Management Act Essential Fish Habitat Consultation for the Port of Umatilla Boat Haul-Out Dock Project, Columbia River at River Mile 290.8, Umatilla County, Oregon (Corps No. 200201021)

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of issuing a permit under section 10 of the Rivers and Harbors Act to authorize installation of the proposed Port of Umatilla Boat Haul-Out Dock Project. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of Snake River (SR) fall-run chinook salmon (*Oncorhynchus tshawytscha*), SR spring/summer-run chinook salmon, Upper Columbia River (UCR) spring-run chinook salmon, SR sockeye salmon (*O. nerka*), UCR steelhead (*O. mykiss*), SR steelhead, and Middle Columbia River (MCR) steelhead, or destroy or adversely modify designated critical habitat. As required by section 7 of the ESA, NOAA Fisheries included reasonable and prudent measures with nondiscretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the impact of incidental take associated with this action.

This document contains a consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and its implementing regulations (50 CFR Part 600). NOAA Fisheries concludes that the proposed action may adversely affect designated EFH for chinook salmon. As required by section 305(b)(4)(A) of the MSA, included are conservation recommendations that NOAA Fisheries believes will avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from the proposed action. As described in the enclosed consultation, 305(b)(4)(B) of the MSA requires that a Federal action agency must provide a detailed response in writing within 30 days of receiving an EFH conservation recommendation.

If you have any questions regarding this consultation, please contact Eric Murray of my staff in the Eastern Oregon Habitat Branch of the Oregon State Habitat Office at 541.975.1835, ext. 229.

Sincerely,

For Michael R Crouse

D. Robert Lohn
Regional Administrator

Endangered Species Act - Section 7 Consultation
Biological Opinion

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Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

Port of Umatilla Boat Haul-Out Dock Project
Columbia River at River Mile 290.8, Umatilla County, Oregon
(Corps No. 200201021)

Agency:	U.S. Army Corps of Engineers
Consultation Conducted By:	National Marine Fisheries Service, Northwest Region
Date Issued:	January 16, 2004
Issued by:	For Michael R Crouse D. Robert Lohn Regional Administrator
Refer to:	**2003/00762**

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1. INTRODUCTION

The U.S. Army Corps of Engineers (COE) proposes to issue a permit to the Port of Umatilla (Port) to install a boat haul-out dock inside a marina on the Columbia River at River Mile (RM) 290.8. The purpose of the proposed action is to provide the Port with the ability to perform boat maintenance. Currently, emergency and regular boat maintenance on boats larger than 24 feet requires travel to Portland. This is inconvenient and creates an economic hardship for boat owners in the middle and upper Columbia River region. To minimize take to listed salmonids the applicant included the following conservation measures as part of the proposed action: (1) Open-spaced, grated decking material will be used on the dock; (2) heavy equipment will be operated from a barge and will not be placed in water; and (3) pilings will be designed and constructed to limit the creation of new avian predator habitat. The COE proposes to issue the permit pursuant to section 10 of the Rivers and Harbors Act of 1899. The action area for this consultation is the Port of Umatilla at RM 290.8 pf the Columbia River.

1.1 Consultation History

On June 17, 2003, NOAA's National Marine Fisheries Service (NOAA Fisheries) received a letter dated June 13, 2003, from the COE requesting initiation of formal consultation on the Port of Umatilla Boat Haul-Out Project (Project). On July 17, 2003, NOAA Fisheries sent the COE a letter indicating a completed biological assessment from the COE on the effects of the (Project) had been received and consultation had been initiated.

1.2 Proposed Action

The project site is on the Columbia River, RM 290.8, in sections 8 and 9, Township 5 North, Range 28 East, near the town of Umatilla, in Umatilla County, Oregon. The Port of Umatilla Marina was constructed in a backwater embayment during the early 1970s. This embayment was excavated under a COE civil works project in the 1960s. The marina is in an industrial riverfront area on the south bank of the Columbia River, approximately 500 feet downstream of the Interstate 82 bridge, and approximately 1.5 miles downstream of the McNary Dam. The marina is in the upstream end of Lake Umatilla, the impoundment behind the John Day Dam. The marina is a man-made, recreational, backwater basin created to protect boats from the wind, wave, and current actions in the mainstream. It is separated from the mainstem of the Columbia River by a riprapped breakwater on the upstream and riverward sides, and by a jetty to the downstream creating a narrow entrance at the northwest corner.

The applicant proposes to construct a boat haul-out structure within the existing marina. The design would allow a traveling crane to straddle a boat, lift it out of the water, and travel back to shore for dry storage or repairs. The proposed structure would involve installing 32 steel pilings to support two runway docks. One of the two dock structures would measure 50 feet long, by 7 feet wide, and 12 feet above the water line. The other dock would measure 50 feet long, by 3 feet wide, and 12 feet above the water line. Clearance between the docks would be 15 feet.

The marina has a simple bathymetry with a flat, average depth of 12-14 feet. The water depth fluctuates with shifts in hydropower operations at the Federal dams in the Columbia River. The project area water depth is influenced by operations of the John Day Dam, approximately 75 miles downstream. Dam operation can cause the marina's depth to range from approximately 10 to 18 feet deep throughout the year. These non-regular water level disturbances create a type of neritic shoreline in the marina that is not conducive to establishing high quality riparian habitat. The sparsely-vegetated, steep sides, the riprapped breakwaters, and the marina jetty drop steeply to the flat-bottomed basin at a slope of approximately 1:1. The south shore of the marina, near the upland parking area, has a slightly shallower slope. This shoreline has more vegetation than the previously mentioned areas, with a maintained lawn on the upper portions and sparse unmowed grass in the gravel toe of the slope. Ornamental trees are present in a single row, approximately 20 feet shoreward from the top of the bank along the south shore.

Spawning habitat is absent from the project site. The backwater off-channel aspect of the site may provide migratory and potential rearing habitat for salmonids, especially migratory refuge for disoriented downstream juvenile migrants which recently passed through McNary Dam. The existing quality of the aquatic habitat present in the marina is deemed not properly functioning. The applicant proposes the following conservation measures as part of the project design to minimize the possible adverse effects of the project:

1. Heavy equipment will be operated from a barge and will not be placed in the Columbia River.

2. Fuels or toxic material associated with the project will not be stored or transferred along water and drainage ways. Equipment will be fueled and lubricated only in designated refueling areas at least 150 feet away from the ordinary high water line.

3. Authorized activities will not restrict passage of aquatic life.

4. Pilings will be designed and constructed to limit the creation of new avian predator habitat.

5. Any construction debris entering the water will be retrieved immediately and disposed at an upland location.

2. ENDANGERED SPECIES ACT - BIOLOGICAL OPINION

The objective of this consultation is to determine whether the proposed Project is likely to: (1) Jeopardize the continued existence of the following seven ESA-listed species of Columbia Basin salmonids, or (2) cause the destruction or adverse modification of designated critical habitat (Figure 1).

Table 1. References for Additional Background on Listing Status, Biological Information, and Critical Habitat Elements for the Listed Species Addressed in this Opinion

Species	Listing Status	Critical Habitat	Protective Regulations
Middle Columbia River (MCR) steelhead	March 25, 1999; 64 FR 14517, Threatened	N/A	July 10, 2000; 65 FR 42422
Upper Columbia River (UCR) steelhead	August 18, 1997; 62 FR 43937, Endangered	N/A	July 10, 2000; 65 FR 42422
Snake River Basin (SR) steelhead	August 18, 1997; 62 FR 43937, Threatened	N/A	July 10, 2000; 65 FR 42422
SR sockeye salmon	November 20, 1991; 56 FR 58619, Endangered	December 28, 1993; 58 FR 68543	November 20, 1991; 56 FR 58619
UCR spring-run chinook salmon	March 24, 1999; 64 FR 14308, Endangered	N/A	July 10, 2000; 65 FR 42422
SR spring/summer-run chinook salmon	April 22, 1992; 57 FR 14653, Threatened	December 28, 1993; 58 FR 68543	April 22, 1992; 57 FR 14653
SR fall chinook salmon	April 22, 1992; 57 FR 14653, Threatened	December 28, 1993; 58 FR 68543	April 22, 1992; 57 FR 14653

2.1 Evaluating the Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the following steps: (1) Consider the status and biological requirements of the species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species; (4) consider cumulative effects; and (5) determine whether the proposed action, in light of the above factors, is likely to appreciably reduce the likelihood of species survival in the wild or adversely modify its critical habitat. In completing step 5 of the analysis, NOAA Fisheries determines whether the action under consultation, together with all cumulative effects when added to the environmental baseline, is likely to jeopardize the continued existence of the ESA-listed species or result in destruction, adversely modify their critical habitat, or both. If NOAA Fisheries finds that the action is likely to jeopardize the ESA-listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

Step 5 of this analysis ultimately requires that NOAA Fisheries determine whether the species-level biological requirements can be met considering the significance of the effects of the action under consultation. Recovery planning can provide the best guidance for making this determination. The 1995 Federal Columbia River Power System (FCRPS) Opinion (NOAA Fisheries 2000a) stated that recovery plans for listed salmon call for measures in each life stage that are based upon the best available scientific information concerning the listed species' biological requirements for survival and recovery. As the statutory goal of the recovery plan is for the species' conservation and survival, it necessarily must add these life-stage specific measures together to result in the survival of the species, at least, and its recovery and delisting at most. For this reason, the species recovery plan is the best source for measures and requirements necessary in each life stage to meet the biological requirements of the species across its life cycle (p.14).

Recovery planning will identify the feasible measures that are needed in each stage of the salmonid life cycles for conservation and survival within a reasonable time. Measures are feasible if they are expected both to be implemented and to result in the required biological benefit. A time period for recovery is reasonable depending on the time requirements for implementation of the measures and the confidence in the survival of the species while the plan is implemented. The plan must demonstrate the feasibility of its measures, the reasonableness of its time requirements, and how the elements are likely to achieve the conservation and survival of the listed species based on the best science available.

In March of 1995, NOAA Fisheries issued in draft the proposed SR salmon recovery plan. Since 1995, the number of ESA-listed salmonid species and the need for recovery planning for Columbia Basin salmonids has grown considerably. Rather than finalize the 1995 proposed recovery plan, NOAA Fisheries has developed guidelines for basin-level, multispecies recovery planning on which individual, species-specific recovery plans can be founded. "Basin-level" encompasses habitat, harvest, hatcheries, and hydro. This recovery planning analysis is contained in the document entitled "Conservation of Columbia Basin Fish: Final Basinwide Salmon Recovery Strategy" (hereafter, the Basinwide Recovery Strategy [Federal Caucus 2000]). The Basinwide Recovery Strategy replaces the 1995 proposed recovery plan for SR stocks until a specific plan for those stocks is developed on the basis of the Basinwide Recovery Strategy. Recovery plans for each individually listed species will provide the particular statutorily required elements of recovery goals, criteria, management actions, and time estimates that are not developed in the Basinwide Recovery Strategy.

Among other things, the Basinwide Recovery Strategy calls for restoration of degraded habitats on a priority basis to produce significant measurable benefits for listed anadromous and resident fish. Immediate and long-term priorities for restoration measures relevant to this consultation include the following general habitat improvements for mainstem reaches:

- Plant riparian and aquatic plants at appropriate locations.
- Develop and implement a monitoring and evaluation program.

The Basinwide Recovery Strategy also established these specific habitat improvement action priorities for the mainstem of the Columbia River between Chief Joseph Dam and Bonneville Dam, the reach that includes the Project:

- Add large woody debris; create shallow water areas; enhance alcove, slough and side channel connections to the main channel; establish emergent aquatic plants in shallow water areas; and stabilize reservoir water levels.
- Restore habitat; acquire riparian corridors; modify flow regimes; reduce non-point pollution; and develop improvement plans for all reaches.

Until the species-specific recovery plans are developed, the Basinwide Recovery Strategy provides the best guidance for judging the significance of an individual action relative to the species-level biological requirements. In the absence of completed recovery planning, NOAA Fisheries strives to ascribe the appropriate significance to actions to the extent available information allows. Where information is not available on the recovery needs of the species, either through recovery planning or otherwise, NOAA Fisheries applies a conservative substitute that is likely to exceed what would be expected of an action if information were available.

2.1.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA to listed species is to define the biological requirements of the species most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution, and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list the species for ESA protection and also considers new data available that are relevant to the determination.

The relevant biological requirements are those necessary for the listed species to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stocks, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

The biological requirements that are relevant to this consultation are, increased migration survival and improved habitat characteristics (including food availability and quality) that function to support successful migration. The current status of the affected listed species, based upon their risk of extinction, has not significantly improved since these species were listed and, in some cases, their status may have worsened due to continuing downward trends toward extinction.

NOAA Fisheries published the information in this section previously as Appendix A to the paper "A Standardized Quantitative Analysis of the Risks Faced by Salmonids in the Columbia River Basin" (McClure *et al.* 2000a). Additional details regarding the life histories, factors for decline, and current range wide status of these species are found in NOAA Fisheries 2000a.

NOAA Fisheries has adopted the species-level biological requirements as its jeopardy standard for the seven listed species being considered in this Opinion. The current status of these species, based on their risk of extinction, shows that their biological requirements are not being met. NOAA Fisheries is not aware of any new data that would indicate otherwise. Nor is NOAA Fisheries aware of any new data that would indicate their status has significantly improved since the species were listed. Improvements in survival rates (assessed over the entire life cycle) are necessary to meet species-level biological requirements in the future.

2.1.2 Status and Generalized Life History of Listed Species

SR Fall-run Chinook Salmon

The Snake River basin drains an area of approximately 280,000 km^2 and incorporates a range of vegetative life zones, climatic regions, and geological formations, including the deepest canyon (Hells Canyon) in North America. The evolutionarily significant unit (ESU) includes the mainstem river and all tributaries, from their confluence with the Columbia River to the Hells Canyon complex. Because genetic analyses indicate that fall-run chinook salmon in the Snake River are distinct from the spring/summer-run in the Snake River basin (Waples *et al.* 1991), SR fall-run chinook salmon are considered separately from the other two forms.

SR fall-run chinook salmon remained stable at high levels of abundance through the first part of the twentieth century, but then declined substantially. Although the historical abundance of fall-run chinook salmon in the Snake River is difficult to estimate, adult returns appear to have declined by three orders of magnitude since the 1940s, and perhaps by another order of magnitude from pristine levels. Irving and Bjornn (1981) estimated that the mean number of fall-run chinook salmon returning to the Snake River declined from 72,000 during the period of 1938 to 1949, to 29,000 during the 1950s. Further declines occurred upon completion of the Hells Canyon complex of dams, which blocked access to primary production areas in the late 1950s.

With hydrosystem development, the most productive areas of the Snake River basin for chinook salmon are now inaccessible to fish or inundated. The upper reaches of the mainstem Snake River were the primary areas used by fall-run chinook salmon, with only limited spawning activity reported downstream from RM 272. The construction of Brownlee Dam (1958; RM 285), Oxbow Dam (1961; RM 272) and Hells Canyon Dam (1967; RM 246) eliminated the primary production areas of SR fall-run chinook salmon. There are now 12 dams on the mainstem Snake River, and they have substantially reduced the distribution and abundance of fall-run chinook salmon (Irving and Bjornn 1981).

For the SR fall-run chinook salmon ESU as a whole, NOAA Fisheries estimates that the median population growth rate (lambda) over the base period[1] ranges from 0.94 to 0.86, decreasing as

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[1] Estimates of median population growth rate, risk of extinction, and the likelihood of meeting recovery goals presented here and below are based on population trends observed during a base period beginning in 1980. Population trends are projected under the assumption that all conditions will stay the same into the future. For further information,

the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin (Tables B-2a and B-2b in McClure *et al.* 2000b).

The proposed actions discussed within this Opinion are within designated critical habitat for SR fall chinook salmon. Critical habitat for SR fall chinook salmon was designated on December 28, 1993, (58 FR 68543). Critical habitat for SR fall chinook salmon encompasses the major Columbia River tributaries known to support this ESU, including the Salmon, Grande Ronde, and Imnaha, waterways below long-standing (more than 100 years duration) naturally-impassable barriers, and therefore includes the proposed project area. The riparian zone adjacent to these waterways is also considered critical habitat. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient/chemical regulation, stream bank stability, and input of large woody debris/organic matter.

SR Spring/Summer-run Chinook Salmon

The location, geology, and climate of the Snake River region create a unique aquatic ecosystem for chinook salmon. Spring and/or summer-run chinook salmon are found in several subbasins of the Snake River (CBFWA 1990). Of these, the Grande Ronde and Salmon Rivers are large, complex systems composed of several smaller tributaries that are further composed of many small streams. In contrast, the Tucannon and Imnaha Rivers are small systems with most salmon production in the main river. In addition to these major subbasins, three small streams (Asotin, Granite, and Sheep Creeks) that enter the Snake River between Lower Granite and Hells Canyon Dams provide small spawning and rearing areas (CBFWA 1990). Although there are some indications that multiple ESUs may exist within the Snake River basin, the available data do not clearly demonstrate their existence or define their boundaries. Because of compelling genetic and life-history evidence that sall-run chinook salmon are distinct from other chinook salmon in the Snake River, they are considered a separate ESU.

In the Snake River, spring and summer chinook share key life history traits. Both are stream-type fish, with juveniles that migrate swiftly to sea as yearling smolts. Depending primarily on location within the basin (and not on run type), adults tend to return after either two or three years in the ocean. Both spring and summer chinook spawn and rear in small, high-elevation streams (Chapman *et al.* 1991), although where the two forms co-exist, spring-run chinook spawn earlier and at higher elevations than summer-run chinook.

Even before mainstem dams were built, habitat was lost or severely damaged in small tributaries by construction and operation of irrigation dams and diversions, inundation of spawning areas by impoundments, and siltation and pollution from sewage, farming, logging, and mining (Fulton 1968). Recently, the construction of hydroelectric and water storage dams without adequate provision for adult and juvenile passage in the upper Snake River has kept fish from all spawning areas upstream of Hells Canyon Dam.

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see, NOAA Fisheries (2000).

For the SR spring/summer-run chinook salmon ESU as a whole, NOAA Fisheries estimates that the median population growth rate (lambda) over the base period 1 ranges from 0.96 to 0.80, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to the effectiveness of fish of wild origin (Tables B-2a and B-2b in McClure *et al.* 2000b).

The proposed actions discussed within this Opinion are within designated critical habitat for SR spring/summer chinook salmon. Critical habitat for SR spring/summer chinook salmon was designated on December 28, 1993, (58 FR 68543). Critical habitat for SR spring/summer chinook salmon encompasses the major Columbia River tributaries known to support this ESU, including the Salmon, Grande Ronde, and Imnaha, waterways below long-standing (more than 100 years duration) naturally-impassable barriers, and therefore includes the proposed project area. The riparian zone adjacent to these waterways is also considered critical habitat. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient/chemical regulation, stream bank stability, and input of large woody debris/organic matter.

<u>UCR Spring-run Chinook Salmon</u>
This ESU includes spring-run chinook populations found in Columbia River tributaries between the Rock Island and Chief Joseph dams, notably the Wenatchee, Entiat, and Methow River basins. The populations are genetically and ecologically separate from the summer and fall-run populations in the lower parts of many of the same river systems (Myers *et al.* 1998). Although fish in this ESU are genetically similar to spring chinook in adjacent ESUs (*i.e.*, MCR and SR), they are distinguished by ecological differences in spawning and rearing habitat preferences. For example, spring-run chinook in upper Columbia River tributaries spawn at lower elevations (500 to 1,000 m) than in the Snake and John Day River systems.

Spawning and rearing habitat in the Columbia River and its tributaries upstream of the Yakima River includes dry areas where conditions are less conducive to steelhead survival than in many other parts of the Columbia basin (Mullan *et al.* 1992a). Salmon in this ESU must pass up to nine Federal and private dams, and Chief Joseph Dam prevents access to historical spawning grounds farther upstream. Degradation of remaining spawning and rearing habitat continues to be a major concern associated with urbanization, irrigation projects, and livestock grazing along riparian corridors. Overall harvest rates are low for this ESU, currently less than 10% (ODFW and WDFW 1995).

For the UCR spring-run chinook salmon ESU as a whole, NOAA Fisheries estimates that the median population growth rate (lambda) over the base period ranges from 0.85 to 0.83, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin (Tables B-2a and B-2b in McClure *et al.* 2000b).

<u>SR Sockeye Salmon</u>
The only remaining sockeye in the Snake River system are found in Redfish Lake, on the Salmon River. The nonanadromous form (kokanee), found in Redfish Lake and elsewhere in the Snake River basin, is included in the ESU. SR sockeye were historically abundant in several

lake systems of Idaho and Oregon. However, all populations have been extirpated in the past century, except fish returning to Redfish Lake.

In 1910, impassable Sunbeam Dam was constructed 20 miles downstream of Redfish Lake. Although several fish ladders and a diversion tunnel were installed during subsequent decades, it is unclear whether enough fish passed above the dam to sustain the run. The dam was partly removed in 1934, after which Redfish Lake runs partially rebounded. Evidence is mixed as to whether the restored runs constitute anadromous forms that managed to persist during the dam years, nonanadromous forms that became migratory, or fish that strayed in from outside the ESU.

NOAA Fisheries proposed an interim recovery level of 2,000 adult SR sockeye salmon in Redfish Lake and two other lakes in the Snake River basin (Table 1.3-1 in NOAA Fisheries 1995b). Low numbers of adult SR sockeye salmon preclude a CRI or QAR-type quantitative analysis of the status of this ESU. Because only 16 wild and 264 hatchery-produced adult sockeye returned to the Stanley basin between 1990 and 2000, however, NOAA Fisheries considers the status of this ESU to be dire under any criteria. Clearly the risk of extinction is very high.

Critical habitat was designated for SR sockeye salmon on December 28, 1993 (58 FR 68543) and includes the mainstem Columbia, Snake, and Salmon Rivers, as well as spawning lakes in the Stanley basin. Designated critical habitat for SR sockeye salmon encompasses the action area for the subject project.

<u>UCR Steelhead</u>
This ESU occupies the Columbia River basin upstream of the Yakima River. Rivers in the area primarily drain the east slope of the northern Cascade Mountains and include the Wenatchee, Entiat, Methow, and Okanogan River basins. The climate of the area reaches temperature and precipitation extremes; most precipitation falls as mountain snow (Mullan *et al.* 1992b). The river valleys are deeply dissected and maintain low gradients, except for the extreme headwaters (Franklin and Dyrness 1973).

Estimates of historical (pre-1960s) abundance specific to this ESU are available from fish counts at dams. Counts at Rock Island Dam from 1933 to 1959 averaged 2,600 to 3,700, suggesting a prefishery run size exceeding 5,000 adults for tributaries above Rock Island Dam (Chapman *et al.* 1994). Runs may, however, already have been depressed by lower Columbia River fisheries.

As in other inland ESUs (the Snake and mid-Columbia River basins), steelhead in the UCR ESU remain in freshwater up to a year before spawning. Smolt age is dominated by 2-year-olds. Based on limited data, steelhead from the Wenatchee and Entiat rivers return to freshwater after 1 year in salt water, whereas Methow River steelhead are primarily age-2-ocean (Howell *et al.* 1985). Life history characteristics for UCR steelhead are similar to those of other inland steelhead ESUs, however, some of the oldest smolt ages for steelhead, up to 7 years, are reported from this ESU. The relationship between anadromous and nonanadromous forms in the geographic area is unclear.

For the UCR steelhead ESU as a whole, NOAA Fisheries estimates that the median population growth rate (lambda) over the base period ranges from 0.94 to 0.66, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin (Tables B-2a and B-2b in McClure *et al.* 2000b).

SR Basin Steelhead

Steelhead spawning habitat in the Snake River is distinctive in having large areas of open, low-relief streams at high elevations. In many Snake River tributaries, spawning occurs at a higher elevation (up to 2,000 m) than for steelhead in any other geographic region. SR steelhead also migrate farther from the ocean (up to 1,500 km) than most.

Fish in this ESU are summer steelhead. They enter freshwater from June to October and spawn during the following March to May. Two groups are identified, based on migration timing, ocean-age, and adult size. A-run steelhead, thought to be predominately age-1-ocean, enter freshwater during June through August. B-run steelhead, thought to be age-2-ocean, enter freshwater during August through October. B-run steelhead typically are 75 to 100 mm longer at the same age. Both groups usually smolt as 2- or 3-year-olds (Whitt 1954, Hassemer 1992). All steelhead are iteroparous, capable of spawning more than once before death.

For the SR steelhead ESU as a whole, NOAA Fisheries estimates that the median population growth rate (lambda) over the base period ranges from 0.91 to 0.70, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin (Tables B-2a and B-2b in McClure *et al.* 2000b).

MCR Steelhead

The MCR steelhead ESU occupies the Columbia River basin from above the Wind River in Washington and the Hood River in Oregon and continues upstream to include the Yakima River, Washington. The region includes some of the driest areas of the Pacific Northwest, generally receiving less than 40 cm of precipitation annually (Jackson 1993). Summer steelhead are widespread throughout the ESU, while winter steelhead occur in Mosier, Chenowith, Mill, and Fifteenmile Creeks, Oregon, and in the Klickitat and White Salmon rivers, Washington. The John Day River probably represents the largest native, natural spawning stock of steelhead in the region.

Most fish in this ESU smolt at 2 years and spend 1 to 2 years in salt water before reentering freshwater, where they may remain up to a year before spawning (Howell *et al.* 1985, BPA 1992). All steelhead upstream of The Dalles Dam are summer-run (Schreck *et al.* 1986, Reisenbichler *et al.* 1992, Chapman *et al.* 1994). The Klickitat River, however, produces both summer and winter steelhead, and age-2-ocean steelhead dominate the summer steelhead, whereas most other rivers in the region produce about equal numbers of both age-1- and 2-ocean fish. A nonanadromous form co-occurs with the anadromous form in this ESU, and information suggests that the two forms may not be isolated reproductively, except where barriers are involved.

Continued increases in the proportion of stray steelhead in the Deschutes River basin is a major concern. The Oregon Department of Fish and Wildlife (ODFW) and the Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO) estimate that 60% to 80% of the naturally-spawning population consists of strays, which greatly outnumber naturally-produced fish. Although the reproductive success of stray fish has not been evaluated, their numbers are so high that major genetic and ecological effects on natural populations are possible (Busby *et al.* 1999). The negative effects of any interbreeding between stray and native steelhead will be exacerbated if the stray steelhead originated in geographically distant river basins, especially if the river basins are in different ESUs. The populations of steelhead in the Deschutes River basin include the following:

- Steelhead native to the Deschutes River.
- Hatchery steelhead from the Round Butte Hatchery on the Deschutes River.
- Wild steelhead strays from other rivers in the Columbia River basin.
- Hatchery steelhead strays from other Columbia River basin streams.

Regarding the latter, CTWSRO reports preliminary findings from a tagging study by T. Bjornn and M. Jepson (University of Idaho) and NOAA Fisheries suggesting that a large fraction of the steelhead passing through Columbia River dams (*e.g.*, John Day and Lower Granite dams) have entered the Deschutes River and then returned to the mainstem Columbia River. A key unresolved question about the large number of strays in the Deschutes basin is how many stray fish remain in the basin and spawn naturally.

For the MCR steelhead ESU as a whole, NOAA Fisheries estimates that the median population growth rate (lambda) over the base period10 ranges from 0.88 to 0.75, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin (Tables B-2a and B-2b in McClure *et al.* 2000b).

2.1.3 Environmental Baseline in the Action Area

Regulations implementing section 7 of the ESA (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. The environmental baseline also includes the anticipated impacts of all proposed Federal projects in the action area that have undergone section 7 consultation, and the impacts of state and private actions that are contemporaneous with the consultation in progress. The action area is defined in 50 CFR 402.02 to mean “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action”.

For the purposes of this consultation, the action area is the part of the habitat of listed salmonids that is affected by the proposed Project. Although most effects of the project will be localized to the Marina (RM 290.8) the biological assessment (BA) defined the action area as Lake Umatilla

(RM 215.6 to RM 292) which is the reach of the mainstem Columbia River between John Day Dam (RM 215.6) and McNary Dam (RM 292).

In general, the environment for Columbia River Basin anadromous salmonids, has been dramatically affected by the development and operation of the FCRPS. Forestry, farming, grazing, road construction, hydrosystem development, mining, and urbanization have radically reduced the quantity and quality of historic habitat conditions in much of the basin. For more than 100 years, hatcheries in the Pacific Northwest have been used to replace natural production lost as a result of the FCRPS and other development, not to protect and rebuild natural populations. As a result, most salmon populations in this region are primarily hatchery fish. The traditional response to declining salmon catches was hatchery construction to produce more fish, thus allowing harvest rates to remain high and further exacerbating the effects of overfishing on the naturally produced (non-hatchery) runs mixed in the same fisheries.

Changes in salmonid populations are also substantially affected by variation in the freshwater and marine environments. Ocean conditions that are a key factor in the productivity of Northwest salmonid populations appear to have been in a low phase of the cycle for some time and are likely an important contributor to the decline of many stocks. The survival and recovery of these species will depend on their ability to persist through periods of low natural survival. Additional details about these effects can be found in NOAA Fisheries 2000a and OPB 2000.

Very few data are available to assess the environmental baseline in Lake Umatilla. The biological assessment notes that existing water temperatures in the action area during the summer and early fall are higher than properly functioning conditions for the listed salmonids that are likely to occur in the area. The marina is thought to contribute to increased water temperatures due to the lack of flow through the shallow marina with and the lack of existing shade. Since riparian vegetation is sparse the existing roof structures provide most of the shade in the marina area.

Based on this assessment, the environmental baseline in the action area is currently “not properly functioning” for: Water quality, channel condition, and flow/hydrology. The current status of each species, as described in section 2.1.2, indicates that the species-level biological requirements are not being met for any of the seven listed species considered in this consultation. Improvements in the environmental baseline and survival rates (assessed over the entire life cycle) are necessary to meet species-level biological requirements in the future.

Continuing FCRPS actions initiated in the lower and mid-Columbia River in response to consultation for the listed stocks are expected to work toward slowing this trend toward extinction for the salmon and steelhead species considered in this consultation. The status of these species is such that a significant improvement in environmental conditions over those currently available under the environmental baseline is needed to ensure long-term survival. Any further degradation of these conditions would have a significant impact due to the risk listed salmon and steelhead presently face under the environmental baseline.

2.2 Analysis of Effects

2.2.1 Species Effects

The proposed permitting of the construction of the boat haul-out dock is likely to adversely affect the seven ESA-listed salmonids in this consultation. The portion of the Columbia River that flows through the action area is a migration corridor for both adults and juveniles.

NOAA Fisheries' ESA implementing regulations define "effects of the action" as "the direct and indirect effects of an action on the species together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline" (50 CFR 402.02).

2.2.1.1 Direct Effects

Direct effects are the immediate effects of the project on the species or its habitat. Direct effects result from the agency action and include the effects of interrelated and interdependent actions. Future Federal actions that are not a direct effect of the action under consideration (and not included in the environmental baseline or treated as indirect effects) are not evaluated (USFWS and NOAA Fisheries 1998).

<u>Construction</u>
The in-water work window for the action area is December 1st through March 31st. The COE is seeking to work outside of the in-water work window, and would like to complete the work between August 1 and October 31. The effects of constructing the boat haul-out are expected to be minimal. The replacement dock will be constructed at an offsite location.
The proposed action includes permitting construction in and near the water. Such construction can mobilize sediments and temporarily increase local turbidity levels in the Columbia River. In the immediate vicinity of the construction activities (several meters), the level of turbidity would likely exceed natural background levels and affect fish. The proposed action includes measures to decrease the likelihood and extent of any such affect on listed salmonids. These measure include timing restrictions and construction Best Management Practices (BMPs).

Quantifying turbidity levels, and their effect on fish species is complicated by several factors. First, turbidity from an activity will typically decrease as distance from the activity increases. How quickly turbidity levels attenuate is dependent upon the quantity of materials in suspension (*e.g.*, mass or volume), the particle size of suspended sediments, the amount and velocity of ambient water (dilution factor), and the physical/chemical properties of the sediments. Second, the impact of turbidity on fish is not only related to the turbidity levels, but also the particle size of the suspended sediments.

For salmonids, turbidity has been linked to a number of behavioral and physiological responses (*i.e.*, gill flaring, coughing, avoidance, increase in blood sugar levels) which indicate some level of stress (Bisson and Bilby 1982; Sigler *et al.* 1984; Berg and Northcote 1985; Servizi and

Martens 1992). The magnitude of these stress responses are generally higher when turbidity is increased and particle size decreased (Bisson and Bilby 1982; Servizi and Martens 1987; Gregory and Northcote 1993). Although turbidity may cause stress, Gregory and Northcote (1993) have shown that moderate levels of turbidity (35-150 nephelometric turbidity units [NTUs]) accelerate foraging rates among juvenile chinook salmon, likely because of reduced vulnerability to predators (camouflaging effect).

It is expected that turbidity arising from the project will be short-lived and have a low potential for actually killing fish. The project includes measures to reduce or avoid turbidity impacts. Installation will occur when listed species are least likely to be present near the project site, minimizing the potential for adverse effects. Those fish that are present in the action area when the effects are manifest are likely to be able to avoid the area until the effects dissipate.

As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. Operation of equipment requires the use of fuel, lubricants, *etc.*, which if spilled into a waterbody or the adjacent riparian zone could injure or kill aquatic organisms. Petroleum-based contaminants, such as fuel, oil, and some hydraulic fluids, contain polycyclic aromatic hydrocarbons (PAHs) which can cause acute toxicity to salmonids at high levels of exposure and can also cause chronic lethal as well as acute and chronic sublethal effects to aquatic organisms (Neff 1985).

<u>Percussive Damage (Pile Driving)</u>
The proposed action includes driving 32 piles with a vibratory pile driver, sledgehammer, or impact hammer pile driver. When driving steel piles, impact hammers produce intense, sharp spikes of sound which can reach levels that harm or even kill fishes (*e.g.*, FRPD Ltd. 2001; Washington State Ferries 2001; NOAA Fisheries 2002; J. Stadler, NOAA Fisheries, pers. comm. 2002). The extent to which the noise will disturb fish is related to the distance between the sound source and affected fish and by the duration and intensity of pile driving. The type and intensity of the sounds produced during pile driving depend on a variety of factors, including, but not limited to, pile type and size, the firmness of the substrate into which the pile is being driven, water depth, and the type and size of the piledriving hammer. The proposed action includes measures to decrease the likelihood and extent of any such affect on listed salmonids. These measure include timing restrictions and construction BMPs.

Fishes may respond to the first few strikes of an impact hammer with a "startle" response. After these initial strikes, the startle response wanes and the fishes may remain within the field of a potentially-harmful sound (Sonalysts Inc. 1997; NOAA Fisheries 2002). To elicit an avoidance response, a sound must be in the infrasound range (less than 20 Hz) and the fish must be exposed to the sound for several seconds (Enger *et al.* 1993; Knudsen *et al.* 1994; Sand *et al.* 2000). Such sounds are similar to those produced when piles are driven with a vibratory hammer. Impact hammers, however, produce such short spikes of sound with little energy in the infrasound range that avoidance is not elicited (Carlson *et al.* 2001). Thus, impact hammers may be harmful for two reasons: (1) They produce more intense pressure waves; and (2) the sounds produced do not elicit an avoidance response in fishes, which will expose them for longer periods to those harmful pressures.

The effects of pile driving sound on fishes depends on several factors, including the sound pressure levels (SPL) being transmitted and the size and species of fish. There is little data on the SPL required to cause harm to fishes. Carlson *et al.* (2001) reported that impact driving of 12-inch diameter wood piles produced peak SPLs up to 195 decibels (dB) (re: 1:Pa). Short-term exposure to SPLs above 180 dB (re: 1µPa) are thought to inflict physical harm on fishes (Hastings 1995, cited in NOAA Fisheries 2002). Based on the known range of hearing for salmon, Feist *et al.* (1992) suggested that the sounds of impact driving of concrete piles were audible to salmon up to 600 meters from the pile-driver, and that salmonids in close proximity (less than 10 meters) to pile driving may experience temporary or permanent hearing loss.

Growing evidence of the effects of pile driving has been demonstrated in the Pacific Northwest. Throughout the study of pile driving effects on juvenile salmonids, Feist (1991) found that pile installation operations affected the distribution and behavior of fish around the site. For example, the abundance of fish during non-pile driving days was two-fold greater than on days when pile driving occurred. Additionally, salmonids were less responsive to the activity of observers on the shore during pile driving than during periods without pile driving. This reduced responsiveness may put them at greater risk of predation.

On several occasions, fish mortality and/or fish distress has been observed during installation of steel piles using impact hammers. At the Mukilteo ferry dock during impact hammer installation of 24-inch and 30-inch diameter steel pilings, juvenile striped surfperch (*Embiotoca lateralis*) floated to the surface and were immediately eaten by birds (Washington State Ferries 2001). The Department of Fisheries and Oceans Canada related that mortality of juvenile salmon, perch, and herring occurred during impact driving of 36-inch steel piles at the Canada Place Cruise Ship Terminal in Vancouver, British Columbia. More recently, a number of shiner perch (*Cymatogaster aggregata*) and striped surfperch were killed during impact driving of 30-inch diameter steel pilings at the Winslow Ferry Terminal in Washington, (J. Stadler, NOAA Fisheries, pers. comm. 2002). Most of the dead fishes were the smaller *C. aggregata* and similar sized specimens of *E. lateralis*, even though many larger *E. lateralis* were in the same area. Dissections revealed that the swimbladder of the smallest of the fishes (80 mm FL) were completely destroyed, while those of the largest individual (170 mm FL) was nearly intact, indicating a size-dependent effect. The sound pressure levels that killed these fishes are not yet known. Of the reported fish-kills associated with pile driving, all have occurred during use of an impact hammer (*e.g.*, FRPD Ltd. 2001; Washington State Ferries 2001; NOAA Fisheries 2002; J. Stadler, NOAA Fisheries, pers. comm. 2002).

Research and field observations show that effects associated with pile driving can range from disruption of schooling behavior to fish death. If impact hammer pile driving equipment is used, in-water operations will only occur between December 15 and February 28 in the year(s) during which the project receives permit(s). Restricting in-water operations to this time period minimizes the potential for adverse effects on juvenile chinook and steelhead because juveniles are least likely to be present in the action area during this work-window.

<u>Lost Benthic Habitat</u>

The footprint of the proposed action will result in the net loss of approximately 24,861 square feet of benthic habitat in the Columbia River. Removal of benthic habitat can reduce invertebrate species and their habitat. Aquatic invertebrates are an important food item of juvenile salmonids. Therefore, removal of benthic habitat could reduce aquatic invertebrates, thus reducing a food source for juvenile and adult salmonids.

Benthic habitats provide forage, cover, and breeding opportunities for riverine fishes (Allan 1995; Waters 1995; Stanford *et al.* 1996). Juvenile salmonids are opportunistic predators that eat a wide variety of invertebrate species. They generally feed on drifting invertebrates in streams although they are also known to forage on epibenthic prey on the stream bottom. Aquatic invertebrates can recolonize disturbed locations quickly and adapt to new features in their environment. Therefore, given the small footprint of the lost benthic habitat relative to the total benthic habitat in the action area and the fast invertebrate recolonization rate, it is unlikely that aquatic invertebrates will be affected to an extent that affects fish.

2.2.1.2 Indirect Effects

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the action. Indirect effects might include other Federal actions that have not undergone section 7 consultation but will result from the action under consideration. These actions must be reasonably certain to occur, or be a logical extension of the proposed action.

<u>Predation</u>

The addition of over-water structures will create beneficial structure for fish species that prey on juvenile salmonids. Native (*e.g.*, northern pikeminnow (*Ptychocheilus oregonensis*)) and exotic (*e.g.*, smallmouth bass (*Micropterus dolomieu*), black crappie (*Pomoxis nigromaculatus*), white crappie (*Pomoxis. annularis*), and yellow perch (*Perca flavescens*)) piscine predators are year-round residents of the Columbia River reservoirs and are also known to consume salmonids. While NOAA Fisheries is not aware of any studies which have been done to specifically determine impacts of in and overwater structures in the Columbia River system on listed salmonids, numerous analogous predation studies suggest that serious predation impacts from these emplacements could occur. Increased predation impacts are a function of increased predation rates on listed salmonids, as well as increased predator populations from introduced artificial habitat that imparts rearing and ambush habitat for native and exotic predator species.

Light plays an important role in both predation success and prey defense mechanisms. Prey species are better able to see predators under high light intensity, thus providing the prey species with a relative advantage (Hobson 1979). Petersen and Gadomski (1994) found that predator success was higher at lower light intensities. Prey fish lose their ability to school at low light intensities, making them vulnerable to predation (Petersen and Gadomski 1994). Howick and O'Brien (1983) found that under high light intensities, prey species (bluegill (*Lepomis macrochirus*)) can locate largemouth bass (*Micropterus salmoides*) before they are seen by the bass. However, under low light intensities, bass can locate the prey before they are seen. Walters *et al.* (1991) indicate that high light intensities may result in increased use of shade-producing structures by predators, while Bell (1991) states that "light and shadow paths are utilized by predators advantageously".

Overwater structures create light/dark interface conditions (*i.e.*, shadows) that allow ambush predators to remain in darkened areas (barely visible to prey) and watch for prey to swim by against a bright background (high visibility). Prey species moving around structure(s) are unable to see predators in dark areas under or beside structure(s) and are more susceptible to predation. Juvenile salmonids, especially ocean type chinook (among others), may use backwater areas during their outmigration (Parente and Smith 1981). The presence of predators may force smaller prey fish species into less desirable habitats, disrupting foraging behavior, and depressing growth (Dunsmoor *et al.* 1991). Bevelhimer (1996), in studies on smallmouth bass, indicates that ambush cover and low light intensities create a predation advantage for predators and can also increase foraging efficiency. Ward (1992) found that stomachs of pikeminnow in developed areas of Portland Harbor contained 30% more salmonids than those in undeveloped areas, although undeveloped areas contained more pikeminnows.

In addition to piscivorous predation, in-water structures (tops of pilings) also provide perching platforms for avian predators such as double-crested cormorants (*Phalacrocorax auritis*) (Kahler *et al.* 2000), from which they can launch feeding forays or dry plumage. The existing anti-perching devices planned for the top of the pilings should minimize the extent to which the dock conveys an advantage to avian predators. Based on the presence of salmonids and native and exotic predators in the action area, and the additional shading created by the installation of the new roof, it appears likely that the proposed action will contribute to increased predation rates on listed juvenile salmonids. However, when added to the environmental baseline, advantageous predator habitat created by this proposed action will likely result in only a minor increase in existing predation rates on listed salmonids in the action area.

<u>Boating Activity</u>
Adding new docks may increase levels of boating activity in the reservoirs, especially near the docks. Although the type and extent of boating activity that might be enhanced by the proposed action are outside of the discretionary action under consultation herein, boating activity might cause several impacts on listed salmonids and aquatic habitat. Engine noise, prop movement, and the physical presence of boat hulls may disturb or displace nearby fishes (Mueller 1980; Warrington 1999).

Boat traffic could also cause: (1) Increased turbidity in shallow waters; (2) uprooting of aquatic macrophytes in shallow waters; (3) aquatic pollution (through exhaust, fuel spills, or release of petroleum lubricants); and (4) shoreline erosion. These boating impacts indirectly affect listed fish in a number of ways. Turbidity may injure or stress affected fishes, as discussed in more detail in section 2.2.1.1. The loss of aquatic macrophytes may expose salmonids to predation, decrease littoral productivity, or alter local species assemblages and trophic interactions. Despite a general lack of data specifically for salmonids, pollution from boats may cause short-term injury, physiological stress, decreased reproductive success, cancer, or death for fishes in general. Further, pollution may also impact fishes by impacts to potential prey species or aquatic vegetation.

2.2.2 Effects on Critical Habitat

NOAA Fisheries designates critical habitat based on physical and biological features that are essential to the listed species. Critical habitat is currently designated in the project area for SR sockeye, SR fall-run chinook, and SR spring/summer-run chinook salmon. Essential features of the area for listed salmon are: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions (50 CFR 226). Effects to critical habitat from these categories are included in the effects description expressed above in section 2.2.1.

2.2.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation". Other activities within the watershed have the potential to impact fish and habitat within the action area. Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes. Between 1990 and 1998, human population in the Columbia Plateau region had a growth rate of 14.4%, a pattern very similar to the state's pattern of growth (OPB 2000). Thus NOAA Fisheries assumes that future private and state actions will continue within the action area.

2.3 Conclusion

After reviewing the best available scientific and commercial information available regarding the current status of the seven ESUs considered in this consultation, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is NOAA Fisheries' opinion that the action, as proposed, is not likely to jeopardize the continued existence of these species, and is not likely to destroy or adversely modify designated critical habitat.

Our conclusions are based on the following considerations: (1) Taken together, the conservation measures applied to proposed project (lighting, grating, and no walls) will ensure that effects to ESA-listed salmon and the essential features of their habitat will be minor; and (2) the individual and combined effects of all parts of the proposed action are not expected to impair currently properly functioning habitats, appreciably reduce the functioning of already impaired habitats, or retard the long-term progress of impaired habitats toward proper functioning condition essential to the long-term survival and recovery at the population or ESU scale.

2.4 Conservation Recommendations

Section 7 (a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid the potential adverse effects of a proposed action on ESA-listed species, to minimize or avoid adverse modification of critical habitat, to develop additional information, or to assist the Federal agencies in complying with the obligations under section 7(a)(1) of the ESA. At this time NOAA Fisheries does not have any conservation recommendations for the COE.

2.5 Reinitiation of Consultation

This concludes formal consultation on the Project as outlined in the biological assessment submitted in June 2003. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) The amount or extent of taking specified in the incidental take statement is exceeded, or is expected to be exceeded; (2) new information reveals effects of the action may affect ESA-listed species in a way not previously considered; (3) the action is modified in a way that causes an effect on listed species that was not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If the applicant fails to provide specified monitoring information by the required date, NOAA Fisheries will consider that a modification of the action that causes an effect on ESA-listed species not previously considered and triggers reinitiation of consultation. To reinitiate consultation, contact the Habitat Conservation Division (Oregon Habitat Branch) of NOAA Fisheries and refer to the NOAA Fisheries tracking number: 2003/00762.

2.6 Incidental Take Statement

The ESA at section 9 [16 USC 1538] prohibits take of endangered species. The prohibition of take is extended to threatened anadromous salmonids by section 4(d) rule [50 CFR 223.203]. Take is defined by the statute as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” [16 USC 1532(19)] Harm is defined by regulation as “an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavior patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering.” [50 CFR 222.102] Harass is defined as “an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering.” [50 CFR 17.3] Incidental take is defined as “takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant.” [50 CFR 402.02] The ESA at section 7(o)(2) removes the prohibition from any incidental taking that is in compliance with the terms and conditions specified in a section 7(b)(4) incidental take statement [16 USC 1536].

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.6.1 Amount or Extent of Take

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of seven listed species of Columbia Basin salmonids because of: (1) The potential exposure to hazardous materials from use of equipment in the Marina; (2) conducting work outside of the in-water work window (harassment of juvenile and adult salmonids); (3) the potential increased predation resulting from the shade created by haul out structure; (4) the potential decreased production of benthic invertebrates (5) percussive damage from pile driving and (6) increases harassment of salmonids and habitat disturbance from boat traffic.

The effects of these activities on population levels are not expected to be measurable in the long term, but despite the use of best scientific and commercial data available, NOAA Fisheries cannot quantify a specific amount of incidental take for this action. In instances such as this, NOAA Fisheries designates the expected level of take in terms of the extent of take allowed. For this project, NOAA Fisheries limits the area of allowable take to the area confined within Lake Umatilla (RM 215.6 to RM 292). Incidental take occurring beyond this area is not authorized by this consultation.

2.6.2 Effect of the Take

In the accompanying biological opinion, NOAA Fisheries determined that this level of anticipated take is not likely to result in jeopardy to the seven listed species of Columbia Basin salmonids considered in the biological opinion or result in the destruction or adverse modification of critical habitats.

2.6.3 Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The COE has the continuing duty to regulate the activities covered in this incidental take statement. If the COE fails to require the applicants to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse. NOAA Fisheries believes that activities carried out in a manner consistent with these reasonable and prudent measures, except those otherwise identified, will not necessitate further site-specific consultation. Activities which do not comply with all relevant reasonable and prudent measures will require further individual consultation.

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to minimize the likelihood of take of listed fish resulting from implementation of this opinion. These reasonable and prudent measures would also minimize adverse effects to designated critical habitat.

The COE shall:

1. Minimize the likelihood of incidental take from construction activities by applying permit conditions or project specifications that avoid or minimize adverse effects to aquatic systems.

2. Minimize incidental take from over-water structures by applying permit conditions or project specifications that avoid or minimize adverse effects to aquatic systems.

3. Ensure completion of a comprehensive monitoring and reporting program to confirm this Opinion is meeting its objective of minimizing take from permitted activities.

2.6.4 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, COE must comply with the following terms and conditions, which implement the reasonable and prudent measures described above for each category of activity. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure #1 (general conditions for surveying, exploration, construction, operation and maintenance), the COE shall ensure that:

    a. <u>Minimum area</u>. Confine construction impacts to the minimum area necessary to complete the project.
    b. <u>Timing of in-water work</u>. An ODFW in-water work window extension has been granted to the COE for the Port of Umatilla Project through June 30, 2004.
    c. <u>Pollution and Erosion Control Plan</u>. Prepare and carry out a pollution and erosion control plan to prevent pollution caused by surveying or construction operations. The plan must be available for inspection on request by COE or NOAA Fisheries.
        i. <u>Plan Contents</u>. The pollution and erosion control plan will contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.
            (1) The name and address of the party(s) responsible for accomplishment of the pollution and erosion control plan.
            (2) Practices to prevent erosion and sedimentation associated with access roads, construction sites, equipment and material storage sites, fueling operations, and staging areas.

(3) Practices to confine, remove and dispose of products used at washout facilities.

(4) A description of any regulated or hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.

(5) A spill containment and control plan with notification procedures, specific cleanup and disposal instructions for different products, quick response containment and cleanup measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.

(6) Practices to prevent construction debris from dropping into any stream or waterbody, and to remove any material that does drop with a minimum disturbance to the streambed and water quality.

ii. Pollutants. Do not allow pollutants including paint, green concrete, contaminated water, silt, welding slag, or grout cured less than 24 hours to contact any wetland or the 2-year floodplain.

d. Preconstruction activity. Complete the following actions before significant[2] alteration of the project area.

i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.

ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite.

(1) A supply of sediment control materials (*e.g.*, silt fence, straw bales[3]).

(2) An oil-absorbing, floating boom whenever surface water is present.

iii. Existing ways. Use existing roadways, and travel paths, whenever possible.

e. Heavy Equipment. Restrict use of heavy equipment as follows:

i. Choice of equipment. When heavy equipment will be used, the equipment selected will have the least adverse effects on the environment (*e.g.*, minimally sized, low ground pressure equipment).

ii. Vehicle and material staging. Store construction materials, and fuel, operate, maintain and store vehicles as follows.

(1) To reduce the staging area and potential for contamination, ensure that only enough supplies and equipment to complete a specific job will be stored on-site.

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[2] 'Significant' means an effect can be meaningfully measured, detected or evaluated.

[3] When available, certified weed-free straw or hay bales will be used to prevent introduction of noxious weeds.

(2) Complete vehicle staging, cleaning, maintenance, refueling, and fuel storage in a vehicle staging area placed 150 feet or more from any stream, waterbody or wetland, unless otherwise approved in writing by NOAA Fisheries.

(3) Inspect all vehicles operated within 150 feet of any stream, waterbody or wetland daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected in the vehicle staging area before the vehicle resumes operation. Document inspections in a record that is available for review on request by COE or NOAA Fisheries.

(4) Before operations begin and as often as necessary during operation, steam clean all equipment that will be used below bankfull elevation until all visible external oil, grease, mud, and other visible contaminates are removed.

(5) Diaper all stationary power equipment (*e.g.*, generators, cranes, stationary drilling equipment) operated within 150 feet of any stream, waterbody or wetland to prevent leaks, unless suitable containment is provided to prevent potential spills from entering any stream or waterbody.

f. <u>Site restoration</u>. Prepare and carry out a site restoration plan as necessary to ensure that all streambanks, soils and vegetation disturbed by the project are cleaned up and restored as follows. Make the written plan available for inspection on request by the COE or NOAA Fisheries.

i. <u>General considerations</u>.

(1) <u>Restoration goal</u>. The goal of site restoration is renewal of habitat access, water quality, production of habitat elements (*e.g.*, large woody debris), channel conditions, flows, watershed conditions and other ecosystem processes that form and maintain productive fish habitats.

(2) <u>Streambank shaping</u>. Restore damaged streambanks to a natural slope, pattern and profile suitable for establishment of permanent woody vegetation, unless precluded by pre-project conditions (*e.g.*, a natural rock wall).

(3) <u>Revegetation</u>. Replant each area requiring revegetation before the first April 15 following construction. Use a diverse assemblage of species native to the project area or region, including grasses, forbs, shrubs and trees. Noxious or invasive species may not be used.

(4) <u>Pesticides</u>. Take of ESA-listed species caused by any aspect of pesticide use is not included in the exemption to the ESA take prohibitions provided by this incidental take statement. Pesticide use must be evaluated in an individual consultation, although mechanical or other methods may be used to control weeds and unwanted vegetation.

(5) Fertilizer. Do not apply surface fertilizer within 50 feet of any stream channel.

(6) Fencing. Install fencing as necessary to prevent access to revegetated sites by livestock or unauthorized persons.

ii. Plan contents. Include each of the following elements.

(1) Responsible party. The name and address of the party(s) responsible for meeting each component of the site restoration requirements, including providing and managing any financial assurances and monitoring necessary to ensure restoration success.

(2) Baseline information. This information may be obtained from existing sources (*e.g.*, land use plans, watershed analyses, subbasin plans), where available.

(a) A functional assessment of adverse effects, *i.e.*, the location, extent and function of the riparian and aquatic resources that will be adversely affected by construction and operation of the project.

(b) The location and extent of resources surrounding the restoration site, including historic and existing conditions.

(3) Goals and objectives. Restoration goals and objectives that describe the extent of site restoration necessary to offset adverse effects of the project, by aquatic resource type.

(4) Performance standards. Use these standards to help design the plan and to assess whether the restoration goal is met. While no single criterion is sufficient to measure success, the intent is that these features should be present within reasonable limits of natural and management variation.

(a) Bare soil spaces are small and well dispersed.

(b) Soil movement, such as active rills or gullies and soil deposition around plants or in small basins, is absent or slight and local.

(c) If areas with past erosion are present, they are completely stabilized and healed.

(d) Plant litter is well distributed and effective in protecting the soil with few or no litter dams present.

(e) Native woody and herbaceous vegetation, and germination microsites, are present and well distributed across the site.

(f) Vegetation structure is resulting in rooting throughout the available soil profile.

(g) Plants have normal, vigorous growth form, and a high probability of remaining vigorous, healthy and dominant over undesired competing vegetation.

(h) High impact conditions confined to small areas necessary access or other special management situations.

(i) Streambanks have less than 5% exposed soils with margins anchored by deeply rooted vegetation or coarse-grained alluvial debris.

(j) Few upland plants are in valley bottom locations, and a continuous corridor of shrubs and trees provide shade for the entire streambank.

(5) Work plan. Develop a work plan with sufficient detail to include a description of the following elements, as applicable.

(a) Boundaries for the restoration area.

(b) Restoration methods, timing, and sequence.

(c) Water supply source, if necessary.

(d) Woody native vegetation appropriate to the restoration site.[4] This must be a diverse assemblage of species that are native to the project area or region, including grasses, forbs, shrubs and trees. This may include allowances for natural regeneration from an existing seed bank or planting.

(e) A plan to control exotic invasive vegetation.

(f) Elevation(s) and slope(s) of the restoration area to ensure they conform with required elevation and hydrologic requirements of target plant species.

(g) Geomorphology and habitat features of stream or other open water.

(h) Site management and maintenance requirements.

(6) Five-year monitoring and maintenance plan.

(a) A schedule to visit the restoration site annually for 5 years or longer as necessary to confirm that the performance standards are achieved. Despite the initial 5-year planning period, site visits and monitoring will continue from year-to-year until the COE certifies that site restoration performance standards have been met.

(b) During each visit, inspect for and correct any factors that may prevent attainment of performance standards (*e.g.*, low plant survival, invasive species, wildlife damage, drought).

(c) Keep a written record to document the date of each visit, site conditions and any corrective actions taken.

g. Piling installation. Install temporary and permanent pilings as follows.

i. Minimize the number and diameter of pilings, as appropriate, without reducing structural integrity.

ii. Repairs, upgrades, and replacement of existing pilings consistent with these terms and conditions are allowed.

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[4] Use references sites to select vegetation for the mitigation site whenever feasible. Historic reconstruction, vegetation models, or other ecologically-based methods may also be used as appropriate.

iii. In addition to repairs, upgrades, and replacements of existing pilings, up to five single pilings or one dolphin consisting of three to five pilings may be added to an existing facility per in-water construction period.

iv. Drive each piling as follows to minimize the use of force and resulting sound pressure.

(1) Hollow steel pilings greater than 24 inches in diameter, and H-piles larger than designation HP24, are not authorized under this Opinion.

(2) When impact drivers will be used to install a pile, use the smallest driver and the minimum force necessary to complete the job. Use a drop hammer or a hydraulic impact hammer, whenever feasible, and set the drop height to the minimum necessary to drive the piling.

(3) When using an impact hammer to drive or proof steel piles, one of the following sound attenuation devices will be used to reduce sound pressure levels by 20 decibels.

(a) Place a block of wood or other sound dampening material between the hammer and the piling being driven.

(b) If currents are 1.7 miles per hour or less, surround the piling being driven by an unconfined bubble curtain that will distribute small air bubbles around 100% of the piling perimeter for the full depth of the water column.[5]

(c) If currents greater than 1.7 miles per hour, surround the piling being driven by a confined bubble curtain (e.g., a bubble ring surrounded by a fabric or metal sleeve) that will distribute air bubbles around 100% of the piling perimeter for the full depth of the water column.

(d) Other sound attenuation devices as approved in writing by NOAA Fisheries.

2. To implement reasonable and prudent measure #2 (over-water and in-water structures), the COE shall ensure that:

a. <u>Piscivorus bird deterrence</u>. Ensure current pilings maintain their anti-perching devices.

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[5] For guidance on how to deploy an effective, economical bubble curtain, see, Longmuir, C. and T. Lively, *Bubble Curtain Systems for Use During Marine Pile Driving*, Fraser River Pile and Dredge LTD, 1830 River Drive, New Westminster, British Columbia, V3M 2A8, Canada. Recommended components include a high volume air compressor that can supply more than 100 pounds per square inch at 150 cubic feet per minute to a distribution manifold with 1/16 inch diameter air release holes spaced every 3/4 inch along its length. An additional distribution manifold is needed for each 35 feet of water depth.

b. <u>Piscivorus fish deterrence</u>. To increase light penetration through the water column beneath the project, incorporate the following constructions designs included in the BA:
   i. <u>Grated decking material</u>. Use grated decking material over a 2-foot wide strip that will bisect the entire length of the 6-foot wide dock structure.
   ii. <u>Walls</u>. Do not install walls in the structure.

c. <u>Flotation</u>.
   i. Permanently encapsulate all synthetic flotation material to prevent breakup into small pieces and dispersal in water.
   ii. Install mooring buoys as necessary to ensure that moored boats do not ground out or prop wash the bottom.

d. <u>Educational Signs</u>. Because the best way to minimize adverse effects caused by boating is to educate the public about pollution and its prevention, as part of any COE permit for the facility, post the following information on a permanent sign that will be maintained at each permitted facility used by the public (such as marinas, public boat ramps, *etc.*).
   i. A description of the ESA-listed salmonids which are or may be present in the project area.
   ii. Notice that the adults and juveniles of these species, and their habitats, are be protected so that they can successfully migrate, spawn, rear, and complete other behaviors necessary for their recovery.
      (1) Lack of necessary habitat conditions may result in a variety of adverse effects including direct mortality, migration delay, reduced spawning, loss of food sources, reduced growth, reduced populations and decreased productivity.
      (2) Therefore, all users of the facility are encouraged or required to:
         (a) Follow procedures and rules governing use of sewage pump-out facilities.
         (b) Minimize the fuel and oil released into surface waters during fueling, and from bilges and gas tanks.
         (c) Avoid cleaning boat hulls in the water to prevent the release of cleaner, paint and solvent.
         (d) Practice sound fish cleaning and waste management, including proper disposal of fish waste.
         (e) Dispose of all solid and liquid waste produced while boating in a proper facility away from surface waters.

3. To implement reasonable and prudent measure #13 (monitoring), the COE shall:

   a. <u>Regulatory program implementation monitoring</u>. Ensure that each applicant submits a monitoring report to the COE within 120 days of project completion describing the applicant's success meeting his or her permit conditions. Each project level monitoring report will include the following information.
      i. <u>Project identification</u>

(1) Applicant name, permit number, and project name.
(2) Type of activity.
(3) Project location, including any compensatory mitigation site(s), by 5th field HUC and by latitude and longitude as determined from the appropriate USGS 7-minute quadrangle map.
(4) COE contact person.
(5) Starting and ending dates for work completed.

ii. Photo documentation. Photos of habitat conditions at the project.
(1) Include general views and close-ups showing details of the project and project area, including pre and post construction.
(2) Label each photo with date, time, project name, photographer's name, and a comment about the subject.

iii. Other data. Additional project-specific data, as appropriate for individual projects.
(1) Water dependent structures and related features.
(a) Area of new over-water structure.
(b) Streambank distance to nearest existing water dependent structure -- upstream and down.
(2) Site restoration. Photo or other documentation that site restoration performance standards were met.
(3) Long-term habitat loss. The same elements apply as for monitoring site restoration.

iv. Site restoration or compensatory mitigation monitoring. In addition to the 120-day implementation report, each applicant will submit an annual report by December 31 that includes the written record documenting the date of each visit to a restoration site or mitigation site, and the site conditions and any corrective action taken during that visit. Reporting will continue from year to year until the COE certifies that site restoration or compensatory mitigation performance standards have been met.

b. Operational program implementation monitoring. Collect and retain the following information for each project completed by the COE using this Opinion.

i. Project identification
(1) Type of activity.
(2) Project location, including any compensatory mitigation site(s), by 5th field HUC and by latitude and longitude as determined from the appropriate USGS 7-minute quadrangle map.
(3) COE contact person.
(4) Starting and ending dates for work completed.

ii. Photo documentation. Photos of habitat conditions at the project and any compensation site(s), before, during, and after project completion.[6]

[6] Relevant habitat conditions may include characteristics of channels, eroding and stable streambanks in the project area, riparian vegetation, water quality, flows at base, bankfull and over-bankfull stages, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

(1) Include general views and close-ups showing details of the project and project area, including pre and post construction.

(2) Label each photo with date, time, project name, photographer's name, and a comment about the subject.

iii. Other data. Additional project-specific data, as appropriate for individual projects.

(1) Work cessation. Dates work ceased due to high flows, if any.

(2) Pollution control. A summary of pollution and erosion control inspections, including any erosion control failure, contaminant release, and correction effort.

(3) Water dependent structures and related features.

(a) Area of new over-water structure.

(b) Streambank distance to nearest existing water dependent structure -- upstream and down.

(4) Site restoration. Photo or other documentation that site restoration performance standards were met.

(5) Long-term habitat loss. The same elements apply as for monitoring site restoration.

iv. Site restoration or compensatory mitigation monitoring. In addition to the 120-day implementation report, each applicant will submit an annual report by December 31 that includes the written record documenting the date of each visit to a restoration site or mitigation site, and the site conditions and any corrective action taken during that visit. Reporting will continue from year to year until the COE certifies that site restoration or compensatory mitigation performance standards have been met.

c. Effectiveness monitoring. Gather any other data or analyses the COE deems necessary or helpful to complete an assessment of habitat trends in stream and riparian conditions as a result of COE permitted actions. The COE may use existing monitoring efforts for this purpose if those efforts can provide information specific to the objective of identifying habitat trends.

d. Annual monitoring report. Provide NOAA Fisheries with an annual monitoring report by January 31 of each year that describes the COE's efforts carrying out this Opinion. Separate projects into regulatory and operational groups, then summarize project-level monitoring information by activity and by 5th field HUC, with special attention to site restoration, streambank protection and compensatory mitigation. Also provide an overall assessment of program activity and cumulative effects. Submit a copy of the annual report to both the Oregon and Washington Offices of NOAA Fisheries.

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e. Annual coordination. Meet with NOAA Fisheries by March 31 each year to discuss the annual monitoring report, including its regulatory and operational applications, and any action necessary to make the program more effective.

3. MAGNUSON-STEVENS ACT

3.1 Background

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance essential fish habitat (EFH) for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2)).

- NOAA Fisheries must provide conservation recommendations for any Federal or state action that would adversely affect EFH (§305(b)(4)(A)).

- Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with NOAA Fisheries EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (§305(b)(4)(B)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.10). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g*., loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 C.F.R. 600.810).

EFH consultation with NOAA Fisheries is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

3.2 Identification of EFH

Pursuant to the MSA, the Pacific Fisheries Management Council (PFMC) has designated EFH for federally-managed fisheries within the waters of Washington, Oregon, and California. Designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line, and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km)(PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other waterbodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years)(PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border (PFMC 1999).

Detailed descriptions and identifications of EFH are contained in the fishery management plans for groundfish (PFMC 1998a), coastal pelagic species (PFMC 1998b), and Pacific salmon (PFMC 1999). Casillas *et al.* (1998) provides additional detail on the groundfish EFH habitat complexes. Assessment of the potential adverse effects to these species' EFH from the proposed action is based, in part, on these descriptions and on information provided by the COE.

3.3 Proposed Actions

The proposed action and action area are detailed above in section 2.1 of this Opinion. The action area includes habitats that have been designated as EFH for various life-history stages of chinook salmon.

3.4 Effects of Proposed Action

As described in detail in section 2.1 of this Opinion, the proposed action may result in short- and long-term adverse effects to a variety of habitat parameters. These adverse effects are:

1. Introduction of pollutants into waterbodies.
2. Increased predation on ESA listed species.
3. Loss of food sources.
4. Habitat disturbance from increased boat traffic

3.5 Conclusion

NOAA Fisheries concludes that the proposed action will adversely affect the EFH for Pacific salmon species.

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH, and the terms and conditions in section 2.6.4 are generally applicable to designated EFH for Pacific salmon, and address these adverse effects. Consequently, NOAA Fisheries recommends that they be adopted as EFH conservation measures.

3.7 Statutory Response Requirement

Pursuant to the MSA (§305(b)(4)(B)) and 50 CFR 600.920(j), Federal agencies are required to provide a detailed written response to NOAA Fisheries' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

3.8 Supplemental Consultation

The COE must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 C.F.R. 600.920(k)).

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